

Skylab Launch Day Set

Skylab, the nation's first space station, is scheduled to be launched from the NASA Kennedy Space Center in Florida May 14, 1973 at 1:30 p.m. EDT.

With Skylab successfully in Earth orbit, the first three-man crew to work aboard the stations is scheduled to be launched no earlier than 1 p.m. EDT, the following day.

A comprehensive two-day review of the results of accomplished prelaunch tests and the remaining work to be done was completed recently by top Skylab Program officials.

"Preparations for both launches are currently proceeding very well. There is still considerable work ahead which may subsequently cause difficulty, but the assessment made today is encouraging," said William C. Schneider, Director of the Skylab Program.

This is the first time a formal date has been set for launching the complex space laboratory. For nearly two years, the Skylab team had used April 30 and May 1 as planning dates for the first two launches.

The planning dates were moved to the month of May in late January when checkout work was running about two weeks behind the pre-launch test schedules.

The onboard experiments and the major spacecraft elements have never flown before and require exhaustive first time testing.

Awards Presented

Individual and group awards were presented on April 6 to employees, engineering teams, university investigators and industry at the Johnson Space Center in recognition of their contributions to the Apollo 17 mission and to the success of the Apollo Program.

Dr. James C. Fletcher, NASA Administrator, presented the awards in an early afternoon ceremony in the Center's auditorium. He was assisted by Dr. George M. Low, Deputy Administrator, and JSC Director Christopher C. Kraft, Jr.

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PICNIC THEME WINNER—Carol Schrader, chairman of the picnic theme committee presents Wilma Wells of the Patent Office a check for \$25. Mrs. Wells is the winner of the picnic theme contest. Chosen from among 35 competitors, Mrs. Wells' idea was to use a sports theme. Thus the 1973 picnic theme will be "All Star Picnic."

Skylab will operate for eight months in Earth orbit and will be occupied at intervals by three-man astronaut crews conducting scientific and technical investigations and observations relating to such areas as Earth resources, physiological effects of long duration, weightlessness, solar phenomena and metals processing in zero-G.

Members of the first crew, planning a 28-day stay in Skylab, are: Commander Charles P. Conrad, Jr.; Science Pilot Dr. Joseph P. Kerwin; and Pilot Paul J. Weitz.

Travelers Plan Hawaiian Tour

The NASA JSC Travelers Club recently announced plans for its second tour to Hawaii. The 10-day tour, scheduled for June 11-20, will cover two islands. The first six days will be spent in Waikiki; the last four days will be spent in Hilo on the Island of Hawaii.

Special full-day, all inclusive tours of Kauai and Maui have been arranged as options for those who wish to see other islands.

Based on double occupancy of 154 participants the tour package costs \$336 per person and

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Center to Assist RIFed Employees

With the impending reduction-in-force of approximately 50 JSC employees, the Personnel Office has established an outplacement committee to assist affected employees in locating employment.

A number of contacts are being made with employees in government and private industry to identify job openings. The outplacement committee is asking the help of all JSC employees in this effort.

If you have any information concerning possible employment opportunities, please phone Ext. 5823 or forward your lead to: The Outplacement Committee Code AHX

Building 45, Room 550

ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON, TEXAS



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GERMAN MED OFFICER — Seen in the above picture is Lt. Col. Edward Burchard, medical officer with the German Air Force. Lt. Burchard recently began a two-year tour duty with JSC. He is assigned to the Flight Medical Section.

ASTP Specialists Plan Further

The ASTP specialists of the Academy of Sciences of the USSR and NASA accomplished their goals at the joint meeting held at JSC March 15-30.

The purpose of the meeting was to advance technical work and to agree upon and sign additional documents necessary to implement the flight to test compatible systems for rendezvous and docking using Apollo-type and Soyuz-type spacecraft.

All five working groups established in the July 1972 meeting took part in the discussions. The groups are: Mission Model and Operational Plans, Control and Guidance, Docking Mechanism, Communication and Tracking, and Life Support Systems and Crew Transfer.

The project technical directors, Professor Konstantine D. Bushuyev for the USSR and Dr. Glynn S. Lunney for the U.S., headed their respective delegations. The technical directors reaffirmed project milestones dates, including the launch date of July 15, 1975, and established that activities necessary to meet the milestones are on schedule.

A program was outlined for a visit to the U.S. by Soviet flight crews and project specialists in July, 1973, for the purpose of familiarization with Apollo spacecraft. U.S. flight crew members and specialists will visit the USSR in September, 1973, for familiarization with Soyuz spacecraft; however, not all U.S. flight crewmen will be available for this first familiarization session because of Skylab responsibilities.

Flight control specialists from both countries will be present in the control center of each country during the test mission.

The training of these specialist will include a visit to and familiarization with each country's control center.

The two countries also reached basic agreement on inter-control center communications, including routing, billing and utilization of communications links.

A list of candidate joint experiments was received and it was agreed that a decision on specific experiments will be reached no later than July 1973.

One month prior to final consideration, each country will exchange information describing each experiment, requirements for conducting it, and other technical data.

Detailed discussions were held concerning flammability of equipment to be transferred from the oxygen/nitrogen environ-

ment of Soyuz to the pure oxygen environment of Apollo.

Because the U. S. has developed materials and techniques compatible with pure oxygen environment, it was agreed that maximum use would be made of Apollo equipment when cosmonauts are in Apollo.

It was agreed that in contingency situations where transfer is impossible a cosmonaut can return to earth in Apollo and an astronaut in Soyuz without special suits or couch systems in either spacecraft. Studies will continue to ensure maximum safety in a mixed crew.

Additional agreements reached during the meeting include:

—Developing a procedure for the second cosmonaut to transfer from Soyuz to Apollo.

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Space Medical System May Have Earth Use

A miniaturized medical diagnostic system originally planned for use aboard manned space stations and now undergoing extensive laboratory tests at JSC, may find its way into everyday clinical use with pediatric and geriatric patients.

A prototype of miniature fast analytical clinical laboratory system developed by the Atomic Energy Commission, Oak Ridge National Laboratory AEC-ORNL for the National Aeronautics and Space Administration provides fast, automated blood analysis by using one-fiftieth the amount of blood required by existing analyzers.

At the conclusion of lab tests currently underway at JSC, the AEC-ORNL developed analyzer will be turned over to the National Institute of Health, Bethesda, Maryland, used in clinical situations.

The analyzer was developed to meet NASA's requirements for a small lightweight, biochemical analytical system capable of performing 12 different studies on astronaut blood samples rapidly and with the minimum amount of supervision. Studies which were begun two years ago by the AEC indicated that a miniature analyzer utilizing a modi-

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Malkin to Head Space Shuttle Office

Dr. Myron S. Malkin has been named Director of the Space Shuttle Program, Office of Manned Space Flight, NASA Headquarters, Washington, D. C.. His appointment was effective April 9, 1973.

In this position, Malkin will report to Dale D. Myers, the Associate Administrator for Manned Space Flight. He will be responsible for planning and directing design, development and test of the Space Shuttle system which was initiated by NASA last year. The major components of the Space Shuttle are the orbiter, the main propulsion system for the orbiter, the external hydrogen oxygen tank and the twin solid

rocket boosters.

Malkin comes to NASA from the Department of Defense where he served as Deputy Assistant Secretary of Defense (Technical Evaluation) from 1972.

In his new position, Malkin succeeds Charles J. Donlan who has been acting director of the Shuttle program since 1970. Donlan will resume his position as Myers' deputy for technical matters, a post he had held since 1968.

Malkin is married to the former Jocelyn Schoen of Brooklyn, New York. They have two children. The family resides in Bethesda, Maryland.

Med System

(Continued From Page 1)
fied existing system could be developed to meet NASA's space station requirements.

Available automatic analyzers have been limited to single point biochemical assays on numerous and rapid chemical analyses on a single crew member blood sample.

The resultant AEC-ORNL studies not only indicated development of such a system was feasible, but would also be useful based laboratories, especially small clinical laboratories, and other special situations.

Dr. Elliot Harris, Chief of the Environmental Health Branch of JSC's Life Sciences Directorate, described the ABC prototype as a true space-age spinoff.

Initially, "Dr. Harris explains, the miniature analyzer is light weight (only 30 lbs.), occupies just three square feet, and is close to being totally automated."

One of its benefits, Dr. Harris said, is the small amount of blood required (1/10th of a cc) to complete the 12 simultaneous analyzes for which existing anal-

yzers require as much as 5cc's and perform single analyses.

The present complete AEC system consists of the miniaturized analyzer, several rotors, a portable data printer, an automated sample and reagent loader, and rotor washing station. In addition, the system has the capability of one-line computer application.

Dr. Harris said the analyzer is currently being validated in the Center's environmental health program and early tests are promising. He said it is expected this new system will be verified and subsequently used in clinical situations.

The space age analyzer could provide a pediatrician with the capability of performing rapid analyzes of an infant through the use of only a drop of blood as compared to a thimble full required by available analyzers.

The doctor could perform the tests right in his office and have the result within minutes.

The same holds true for geriatric patients, emergency room patients, victims of accidents, where rapid multiple diagnosis with minimum blood samples are vital.

Students Receive Scholarships

Four high school honor students have been selected as winners of the NASA Exchange-JSC scholarships for 1973.

Marilyn McBride, daughter of James McBride of the Flight Control Division, was awarded the Joseph N. Kotanchik Scholarship, an engineering scholarship established in memory of the late Chief of the Structures and Mechanics Division.

Also receiving scholarships are Susan Dittman, daughter of Robert A. Dittman of the Bioengineering Systems Division; Peggy Ann Powell, daughter of Marquis G. Powell of the Logistics Division; and Michael Stutesman, son of Harley L. Stutesman, Jr., of the Crew Systems Division.

All of these students have maintained "A" averages in high school and are members of the Mu Alpha Theta Mathematics Honor Society.

Susan Dittman, who attends Clear Lake High School, is on the Special Honor Roll, and has been tutoring underclassmen in all subjects.

Peggy Ann Powell, a student at Dobie High School was selected as one of the Outstanding Teenagers of America and is a member of the Society of Outstanding American High School Students.

Michael Stutesman, of Sam Rayburn High School, is a 4-year letterman in tennis who was District 23AAAA singles champion in 1969 and co-champion in 1970. He has received Academic Excellence Awards for 3 years.

Marilyn McBride is a member of the Student Council at Dickinson High School and has been active in the school band, the Spanish Club, the French Club and the Sailing club. She was a member of the House Crew in the All School play and was in charge of the Homecoming Dance in the fall of 1972.



RECEIVES SCHOLARSHIP — Mrs. N. Kotanchik presents Marilyn McBride a scholarship award named in honor of her late husband. Miss McBride, who attends Dickinson High School, is the first student ever to receive this particular award.

Secretaries Hold Seminars

JSC Director of Administration and Program Support Dr. Phillip Whitbeck, and Jones W. Roach, Assistant Chief for Flight Control Operations will be two of the guest speakers at the third annual seminar of the National Secretaries Association, International NASA Clear Lake Chapter. The seminar will be held April 14, 1973 at the Holiday Inn on NASA Road I. This year's theme is "Space-Age Technologist—Today's Secretary."

Door prizes donated by area businesses will be given away and lunch will be served at 11:45 a.m. Registration begins at 8:00 a.m.

Also, "Secretaries Week" will be observed April 22-28, 1973, with the intervening Wednesday, April 25, set aside as Secretaries Day.

All secretaries in the local area are invited to share in its

purpose of bringing recognition to secretaries for the vital roles they play in business, industry, education and government.

"Better Secretaries Mean Better Business" is the theme for Secretaries Week.

Awards

(Continued From Page 1)

A total of 11 Distinguished Service Medals were awarded including citations to the Apollo 17 crew and one posthumously to an employee who passed away during the height of the lunar program; Joseph N. Kotanchik.

Exceptional Service Medals were awarded to 39 employees while 15 persons received the NASA Exceptional Scientific Achievement Medal.

Receiving Group Achievement Awards were the JSC Lunar Landing Team, the Lunar Science Team, the Lunar Landing Training Vehicle Support Team and the Public Affairs Office.

Public Service Awards were presented to four firms in the aerospace industry—Philco—Ford Corporation, IBM Corporation, the Grumman Aerospace Corporation TRW Systems Incorporated.

Three non-NASA awards also were presented at the ceremony—the Presidential Management Certificate to Dr. Jeffrey Warner of the Planetary and Earth Sciences Division; the National Oceanic and Atmospheric Administration, Public Service Award to Dr. Harrison H. Schmitt and the Geological Society of American Certificate for Exceptional Service to the Apollo 17 crew.

Correction!

The ROUNDUP wishes to retract an erroneous headline which appeared in the March 16 edition.

The headline, which was printed on page 2 stated "Support Services Contract Awarded," indicating that a final decision had been made.

The body of the story, however, was accurate in stating that the Alpha Building Corporation had been selected for negotiation of a contract to provide minor construction and alterations under a support services award at JSC.



MEDICAL TECHNICIAN—Larry Wallace, Medical technician, is checking out the spinoff potential of a newly developed blood analyzer. This miniaturized medical diagnostic system is now undergoing extensive laboratory tests at JSC. This photo was taken in Building 37.

ROUNDUP

NASA LYNDON B. JOHNSON SPACE CENTER

HOUSTON TEXAS

The **Roundup** is an official publication of the National Aeronautics and Space Administration Lyndon B. Johnson Space Center, Houston, Texas, and is published every other Friday by the Public Affairs Office for JSC employees.

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Traveler

will include round trip airfare on a through-plane for Houston, via Continental Airlines 747; flower lei greeting on arrival in Hawaii; round trip transfers between hotels and airports; luggage portage and tips, hotel accommodations at the Cinerama Reef in Waikiki and the new Waiakea Village on the Big Island; inter-island airfare from Honolulu to Hilo, Hawaii, arrival parties on both islands all-day sightseeing and tour services desks in the hotels; all taxis, tips and service charges.

A description of the tour-package, along with other available specials will be sent to employees upon receipt of a minimum deposit of \$50 per person.

Fares for children and triple, quadruple and single occupancy rates are available upon request. Persons interested in the tour should contact Gerry Swanick, extension 2083, Florence Pipes, extension 4725; Bill Wylie, extension 3171 or 333-3133; or Ron Rafuse, 488-0080, extension 218.

Aerospace Club Offers Training

The Aero Club is planning to conduct two pilot training programs this Spring. In addition to the Sanderson private pilot audio-visual ground school (\$20) offered in the past for student pilots and non-pilots interested in learning about flying, the Club is initiating a complete ground/flight instrument training course.

For pilots just beginning training for the instrument rating, the complete course, including ground school will be approximately \$700 (\$500 for Club members). The cost should be less for instrument rated pilots who wish to take a refresher course and/or transition into higher performance aircraft. The IFR ground school may be taken separately for \$30.

The first meeting of the Private Pilot ground school will be 5:15 p.m., April 16, Bldg. 2, room 720. Contact Ron Kelly (5561) for further information. The first meeting of the IFR ground school will be 5:15 p.m., April 17, Bldg. 31, room 193. Contact Tom Giuli (6467) or Jim McCoy (5171) for further information.

JIMMY WARREN MEMORIAL BOWLING LEAGUE

Hexes	69	39
Jokers	62	46
Spoilers	60	48
Pin Pounders	59	49
Ascenders	58	50
Strikeouts	58	50
Ball Busters	57	51
Clowns	56½	51½
Chokers	53½	54½
Fabricators	49½	58½
Hertz	46½	61½
Alley Oops	45	63
Mixers	44	66
Team No. 9	38	70
	Game	Set
Ron Durkee	246, 214, 225	685
Pete Peterson	241	641
Dan Kennedy	226	644
Jim Pavlosky	254	632
Jack Kochner	244	613
Jim Yawrence	233	610
Al Spivy	235	600
John Dornbach	244	—
Gene Rice	244	—
Bob Harris	223	—
Ron West	217	—

Team Formed

A new JSC mixed league is planned for the 1973-74 bowling season. The league will bowl at the new Clear Lake City Bowling Lanes, which will be operational around September, 1973.

The league will bowl on Tuesday nights from 6:15-9:00 p.m. and will be limited to twelve teams.

Membership will be limited to JSC and contractor employees, and will be on a first call, first selection basis.

Those persons who are interested in joining the league may call Arc Lee, Ext. 6201 or Nick Jevas, Ext. 4193 for further information.

Karate Lessons To Be Offered

Beginning in May, a Karate class, under the instruction of Mr. Young Koo Lee, will be offered for JSC employees and contractors.

Originally from Korea, Mr. Lee has been in the U. S. approximately 5 months and is presently teaching at several Houston YMCA's. He has been teaching Karate for 15 years to American soldiers in Korea and holds the 4th degree Black Belt.

Mr. Lee will teach Tae Kwon-Do, a Korean style Karate that emphasizes vigor, enthusiasm, sportsmanship, and patience.

The class, which will hold from 20 - 30 members, is scheduled to meet twice a week from 6:00 p.m. to 7:30 p.m. on either Tuesdays and Thursdays or Mondays and Wednesdays.

The cost of the program will be \$20 a month.

For additional information concerning the class, contact Lynn York, extension 6455.

Roundup Swap-Shop

Swap Shop advertising is available to JSC and on-site contractor personnel. Articles or services must be offered as advertised, without regard to race, religion, sex or national origin. Ads should be 20 words or less, including home telephone number. Name and office code must accompany, but need not be included in ad copy. Typed or printed copy must be received (AP3 Attn: Roundup) by Thursday of the week before publication.

MISCELLANEOUS

Conn Professional model tenor saxophone, prfct, used less than 2 years, \$350, McMurrey, 534-3625.

1 pr Sears heavyduty shock absorbers for 65-67 Chrysler products, used only 2 mos, \$10, Wardell, 333-3587.

Bench mount 4"x36" belt sander wi 6 in. disc sander attachment, \$55, motor xtras, 944-8717.

Leather golf bag, \$25, EICO model 460 5" Oscilloscope, \$75, Ward, 488-4442.

Student desk, \$45, reg 8mm movie camera/projector, \$50, blonde cnsl radio/record player, \$35, 9x12 grass rug, \$5, b&w portable tv, \$10, Pittman, 488-1243.

Set of chrome "mag type wheels," 14x7 nch rims, oval slots, all hardware included, li new, York, 488-2188.

Dunlop tire, 5.50x15, mounted on TR-3 wheel, make offr, Weitz, 333-3071.

Conn brass cornet, wi case, gd cndn, xint for beginning band student, \$135, Pat 482-7794.

1-29 gal, 2-20 gal aquariums w/plexiglas covr, and light strip to cover all, \$75, 3 pwr filters incl, \$50 more, Nichols, 643-4126.

Typewriter, Smith Corona electric, gd cndn, 5 yrs old, \$45, Harvy 621-5311.

Electrophonic Calculator, 12 digit wi memory, current list, \$130, sell \$90, used 3 mos, prfct cndn, Andre, 483-2626.

Yashica TL Super SLR camera, f 2.0 Mamiya/Sekor lens, \$90, wide angle and telephoto lens available, Sunset tripod, \$15, Campbell, 333-3368.

Argus -c-3 camera w/wide angle lens \$12, Gossen Super Pilot exposure meter, \$15, Facal 40 electronic flash, \$10, 333-3368.

Browning 22 LR automatic rifle wi Leupold 4 pwr scope, \$100, 333-3368.

Konica 126 cartridge camera w/f 2.8 lens and electr eye, \$25, 333-3368.

Woman's diamond, solitaire mounted, weight 72 pts, appraised 1969 \$735, sell for 25% off appraisal, Chambliss, 483-5973 or 482-1532 aft 7 p.m.

Childcraft Encyclopedia set, \$25, sofa, \$10, box springs, \$10, Banana Bike, \$20, ladies single speed bike, \$10, 554-2645.

3-drawer chest wi antiqued finish \$15, 2 modern end tables, \$5 ea; 333-3254.

Portable Westinghouse air cndn, 115 volts, 5000 BTU, quiet multi-spnd fan, reasonable, plugs in, 944-0167.

1970 Ponton 100 mx, gd cndn, \$325, Rose, 334-3461.

Club chair, large, well built, gd cndn, \$20, Barbell/Dumbbell set, all steel, selectable weights to 120 lbs, \$12, 333-2509.

Remington model 99 printing calculator, NASA surplus, \$110 Kilbourne 482-7879.

J. B. Lansing 075 ring radiator, super tweeter, pr for \$70, Electro Voice mid-range horn T25A/B HD, pr for \$100, 481-3656 aft 6 p.m.

Voice of Music model 720, 4 track, tape recorder/stereophonic playback wi Vm model 8810 amplifier wi speaker \$50. Arvin 10 watt amplifier wi speaker \$10, Jim Ragan, x 2891.

Portable water purifier, pure water anywhere, boats, campers, home, removes dissolved solids and bacteria, 337-2153.

PROPERTY AND RENTALS

CLC Townhouse, by owner, 2-2½-2, the large size, assume 6% loan or refinance, brick firewall between units, well insulated, party floored attic, all drapes, numerous xtras added, 488-2665.

Nassau Bay, Spanish, 4-2½-2, 2500 sq. ft., court yd, screened back patio, fenced bk yd, 7 yrs old, 488-3353 days, 333-2880 evenings, wkends.

3-2-2 League City, Bayou Brae, close to high school, gd cndn, incl swimming pool membership, under \$2500, 544-2645 aft 6 p.m.

Between Friendswood and Alvin, 3-2-2, central air/heat on ½ acre lot, Friendswood school dist, Chambliss, 483-5973 or 482-1532 aft 7 p.m.

Bluebonnet country, golf course lot and heavily wooded homesite lot for sale, xint recreational facilities,, gd terms, 785-7930 aft 6 p.m.

Oak Meadows (off 225), 2-1-1, carpeted, \$1500 equity, Mo. pymt., \$89, bal on mortgage, \$7694, Karen, 483-6321.

House for rent, 2 bdrm, brick, carport, carpeted, \$140 month, in Friendswood, 482-7642 or 488 6917.

Lease new townhouse, 2 br, 1½ bath, covered parking, storage, furnished or unfurnished, Dickinson, 1 blk from Gulf Fwy, 337-2153.

VEHICLES

Hondas, 175 and 750, \$450 and \$1295; 3 bike trailer, \$250, pkg, deal \$1900, Sark, 534-6058.

68 Renault, R 1190 4-dr SDN, radio, heater, a/c, clean, 25 mpg, \$600, 1973 plates.

72 Honda 600 Sport Coupe, 6 mos old, 5500 mi, \$1395 w/o stereo, \$1495 wi stereo, Falbo, 645-7093.

66 VW bus, engine recently overhauled, xint cndn, \$695, firm, Marilyn, 482-7017.

65 Pontiac Starchief, drives, rides and looks great dependable, gd tires, \$780, Park, 481-1255.

67 Impala, 2 dr ht SS ps, radio, air/heat, clock, runs well, \$750 min offr, 482-7947 aft 6 p.m.

70 MG Midget, xint cndn, radial tires, always gd maintenance, \$1495 or best offr, 60 Sunbeam Alpine, Hard and soft top, new tires, alloy wheels under 45,000 mi, \$395 or best offer, Jim 488-3575.

68 Pontiac sta wgn, 1 owner polyglass tires, \$1395, 333-4378.

Honda 72 SL-125, xint cndn, 1300 mi, \$400, 471-3405.

Rent by day or week, 72 Jayco ht, fold down camper, kitchen, icebox, sleeps 8, privately owned, Kilbourne 483-5276 or 482-7879.

71 Mazda, stick shift, air, radio, heater, 10,000 mi, li new, \$2500, Burns, 538-2004.

72 T Bird, pastel lime wi dark green leather, splitbench pwr seat, fully equipped incl spd cntrl and conering lights, steel belted Michelin tires, \$4805, 772-4848.

71 Kawasaki 500, xint, \$750, McMurrey, 534-3625.

68 XR-7 Cougar, air, leather uphols, auto, pwr s/b, radial tires, \$1,550, 485-5504 aft 5 p.m.

69 Buick Riviera, 45,000 mi, fully equipped, gd cndn, \$2275, Brenton, 488-4372.

68 Chev Pick-up, LWB, 46,000 mi, clean, xint cndn \$1,100, 488-2584.

20" boys bike, gd working cndn, nds paint and inner tube, \$10, 488-0658.

64 Rambler American 440, 4-dr, auto, air, radio, gd cndn, \$295, 482-7029 aft 5:30 p.m.

69 Pontiac sta wgn, pwr brk, ps, air, new tires, \$1500, 481-2688.

Mini-bike, Car II eliminator, 3½ hp, Tecumseh, small tires, runs but nds tuning; \$75, 944-4116.

3-spnd bikes, 2 English 26 inch 1 man's 1 woman's 1 Sears 24 in boy's, \$10 ea, all three for \$25, Wardell, 333-3587.

500 capacity one wheel trailer wi metal cover and car hitches, ideal for camping equipment, \$100, Wasson, 488-2722.

Ford Econoline Window van, new paint, overhauled 66 Mustang engine, nw battery, king pins, gd tires, \$500, 488-2722.

69 Cadillac Sedan de Ville, loaded, radial tires, xint cndn, must sell, \$2600, Harrier, 483-1048.

70 Ford Maverick, xint cndn, gd economy car, \$900, Al Cornelius, 575-1248 (Baytown).

66 Chevy Sport van wi heavy duty engine and running gear, Haines, 941-2495.

Apache camp trailer, hard top, easy open, built in stove top, drawers, storage sleeps 5, xint cndn, \$600, 479-4520.

69 Plymouth Fury III, low mileage, \$1100, St Leger, 473-2004.

Camp trailer, hard top, easy open, built in stove top, drawers, storage sleeps 5, xint cndn, \$600, 479-4520.

70 Suzuki TS 90, lw mi, gd cndn, \$195, Rose, 334-3461.

69 Olds Custom 88, 4-dr, air, pwr, vinyl roof, xint cndn, best offr over \$1400, Wilson, 472-2457.

64 Grand Prix, gd cndn, no rust, pwr and air, \$395, 334-1110.

62 Volvo, 4-dr-4 spd, 73 tags, new inspection, sticker, \$295, Presswood, 479-1159.

For rent, Cessna 205 and 182, 205 IFR, 6 Sears, \$25/hr, wet 182 \$21/hr wet, based Spaceland, Malone 332-1367, 483-3831.

Honda CT 70, 1 owner, xint cndn, \$175, also Honda 70 bumper carriers, xtra strong, \$10, 334-2206.

71 MG Midget, 488-6917.

TR 4 wi 302 Ford engine, red wi black top, Pirellis, McCaine, 665-6993.

71 Mercury Cougar, stereo, air loaded, xint cndn, 474-23-69 aft 5.

72 Pontiac Lemans, 2 dr hdtpr, pwr str, brakes, windows, other xtras, 5000 mi, Coan, 488-1028.

72 Jayco hdtpr fold down camper, kitchen, icebox, sleeps 8, \$10 per day or \$57 per week, Kilbourne, 482-7879.

Girl's bike, 24 inch wheels, compltly English, 1 spd, well-bltd, new tires, tubes gd cndn, \$20, 333-2509.

HOUSEHOLD ARTICLES

90" brown hide-a-bed, makes into queen size bed, \$120, 944-8717.

2 piece sectional couch, green and gold, 6 mos old bought new, \$200, set price, reg \$450, Davidson, 649-1519.

Two piece sectional couch, orange, 13 ft total, \$73, Rysavoy, 481-3787.

Freezer, chest type, used 3 mos, 18 cu ft, \$85, Harvey, 621-5311.

Stereo cabinet 72", xint cndn, \$75, Ironer wi built-in stand & cover, \$35, Walnut coffee table, \$20, High, 333-3254.

PETS

2 female Dachshunds, AKC, 7 mos, must sell, best offr, 481-4336 or 488-2422.

BOATS

16' Squall King, 45 hp Evinrude wi trailer, \$500, Watkins, 534-5427 or 534-2437.

14' Alum Ouachita semi-v boat, heavy duty, 64 gage, li new, used 3 times, \$150, 534-3378.

800 lb capacity Galv boat trailer, tilt, 73 tag, li new, used three times \$120, 5343378.

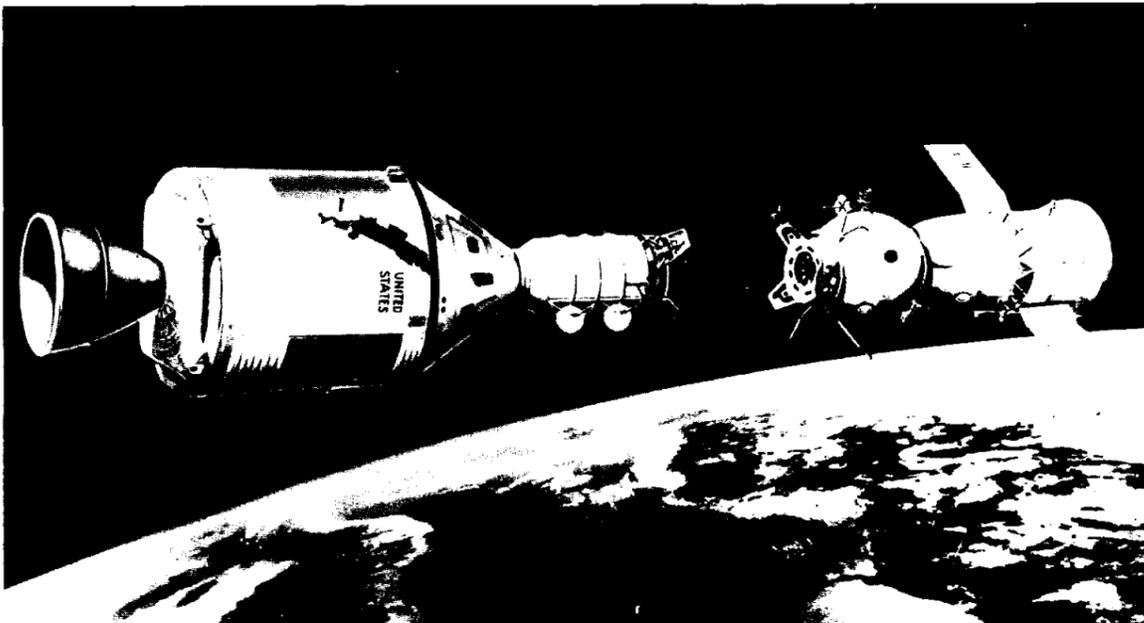
WANTED

Tailgate for 1969 Chevrolet (LWB) custom pickup no rust, Vance, 483-5293.

Join group for reduced subscription rate to Consumer Reports Magazine, \$6, Parker, 4535.

Jenny Lind baby bed and mattress, reasonable 337-2153.

Low mileage 73 Cutless Supreme or Monte Carlo Landow, 944-1321, Jones, 944-1321.



ASTP DOCKING APPROACH — An Apollo-Soyuz Test Project artist's concept illustrating the docking approach of an Apollo spacecraft to a Soyuz spacecraft. The American and Soviet crews will visit one another's spacecraft while the Apollo and Soyuz are docked in Earth orbit for a maximum of two days.

Take stock in America.

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NASA Testing Device Measures Human Coordination

Realtime studies of how readily man's mind and muscles respond to everyday demands of his environment are possible with a new machine developed from NASA technology.

The testing device, for measuring human coordination and psychomotor skills, was viewed in Washington recently by a score of representatives of government agencies and research organizations.

Visitors to the demonstration were shown potential uses of the new device as they might apply in personal testing, in traffic law enforcement, in determination of fatigue, and as an aid in many types of learning processes.

"Man's success in today's complex society as well as his per-

sonal safety may depend on how well he is matched—upon his efficient interface—with the equipment and stimuli he encounters at home, at work, in school and on our highways," Mr. Jesse J. Williams, president of JWM Corporation, Philadelphia, Pa., said. The JWM Corporation is manufacturing the new psychomotor tester.

Called "Epic" (Electronic Programmable Interactive Coordinator/trainer), the new device consists of a control console the size of a large electric typewriter, a display panel and four hand and foot controls.

With the test subject seated at the controls, an attendant poses a manipulation problem by flashing lights on the display panel. Using levers operated by his

hands and feet, the person taking the test tries to match a given set of colored lights by coordinating use of his limbs to light all related elements on the panel.

Accurate responses are time-limited, since the combination of lights representing the "problem" are constantly changing—calling for a continuing succession of adjustments on the part of the person being tested.

William's firm developed EPIC from NASA prototype complex coordinator designed in 1965 by Langley Research Center—to test astronauts manipulative skills and to determine how fatigue would effect their dexterity.

By substituting integrated electronic circuitry for the original mechanical programmer, JWM

Corporation has developed a readily portable, solid state machine capable of flashing a new problem on its lighted display board at intervals of from one to 10 seconds.

Various versions of the EPIC tester are being offered, selling at prices ranging from \$5,000 to \$30,000—depending on the adaptations and equipment desired.

The basic testing unit can be delivered coupled with a digital cassette recorder, a computer, or other taping or record-keeping accessories.

William listed some of the most promising fields where his device finds a ready use, including: bio-medicine and rehabilitation; testing personal aptitude for various jobs in industry and business; law enforcement and high-

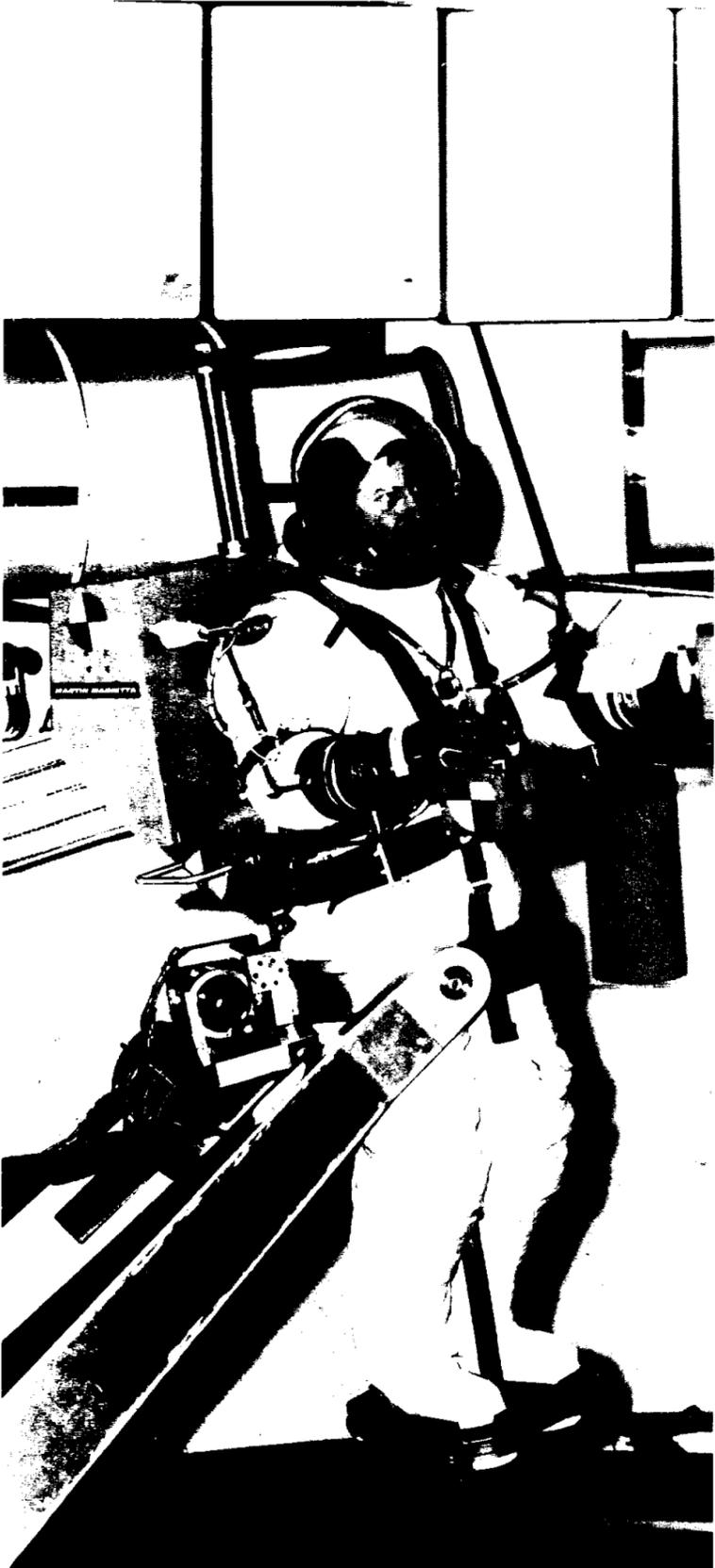
way safety; and in various educational fields, including teaching the physiology of muscle coordination.

The psychomotor testing machine treats the human being as an integrated system—with stimuli and responses as inputs and outputs. The device can establish a performance norm for each person tested.

When the individual deviates from his norm, physical injury, fatigue or emotional stress may be present, or improvements in psychomotor response could also be observed.

Test results can indicate the need for remedial help or show progress in learning or treatment.

JWM has received a \$70,000 contract from NASA to deliver three EPIC's.



ASTRONAUT PREPARES FOR FLIGHT — Skylab Astronaut Paul J. Weitz trains on the Astronaut Maneuvering Unit Simulator at Martin Marietta Aerospace near Denver. Weitz and other astronauts scheduled to man the nation's first space station are completing training on the simulator which duplicates conditions to be experienced when the maneuvering unit is tested inside the Skylab workshop.

ASTP

(Continued From Page 1)

—Changing the rendezvous from the 14th to the 30th Apollo revolution if Apollo is launched at its first opportunity.

—Incorporating into the mission plan provisions for fourth and fifth launch opportunities for Apollo.

—Developing a test program for docking system seals.

For the rest of the year individual joint working groups and the technical directors and their staffs will meet almost on a monthly basis both in Houston and in Moscow.

Regular telecommunications will also be maintained.

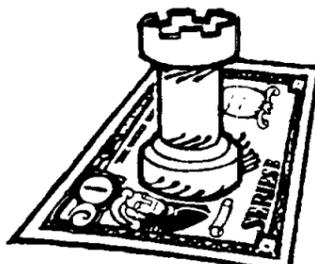
Skylab to Collect Dust Particles

The 1973 Skylab manned Earth orbiting space station will be equipped to collect material from interplanetary dust particles to determine the number and size of micrometeoroids in near-Earth space.

Specially prepared sample collection surfaces will be extended from Skylab.

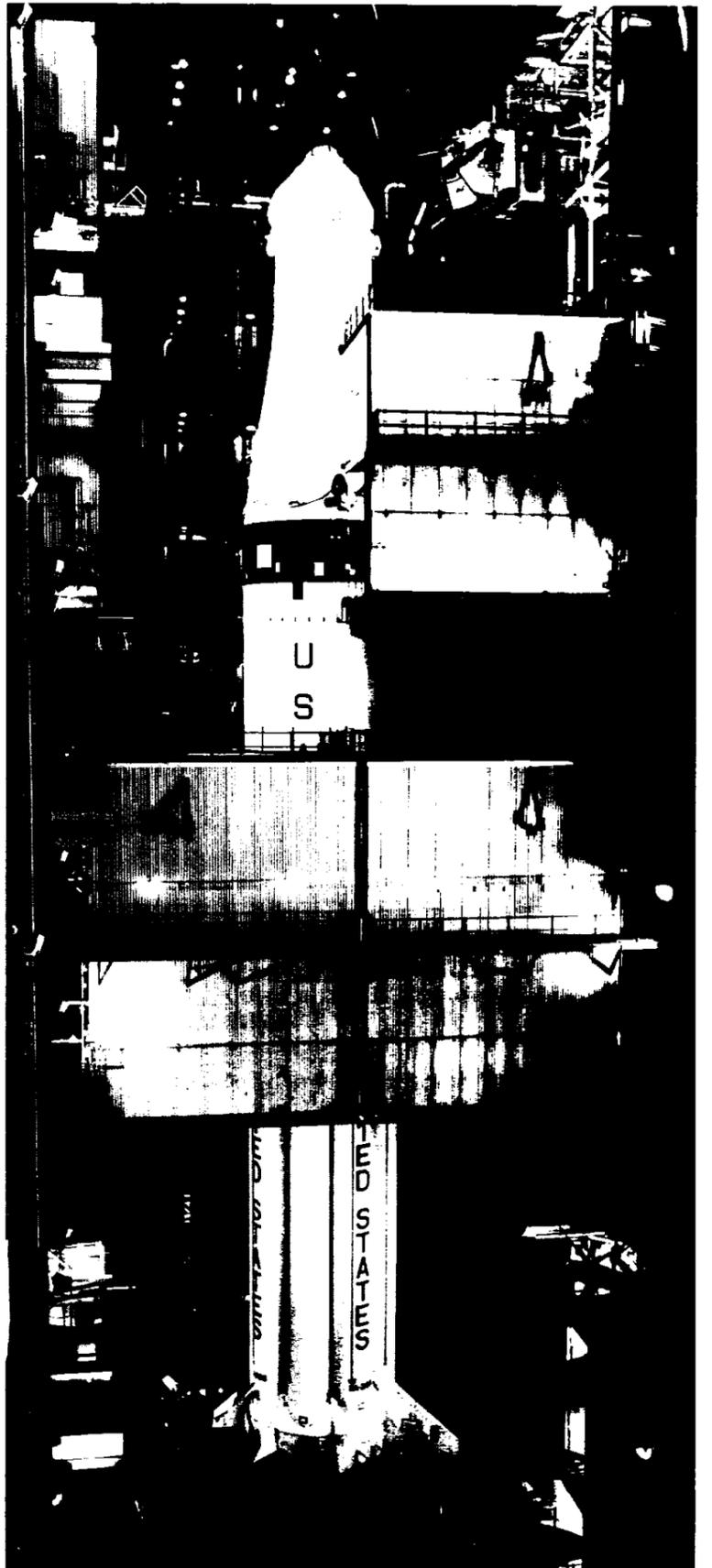
When a micrometeoroid strikes one of these surfaces it will leave a crater. The mass, size and velocity of these particles can be calculated from an analysis of these craters.

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SATURN IB — Final configuration of Saturn IB first and second stages for Skylab 2 space vehicle atop a 129 foot pedestal on a mobile launcher. Work platform and enclosure for environmental control when technicians enter the two stages during checkout operations hides part of both stages.